~~PRELIMINARY~~ REPORT
ENVIRONMENTAL SYSTEMS REVIEW PROGRAM
OF
ANACONDA ALUMINUM REDUCTION PLANT
COLUMBIA FALLS, MONTANA

By the Inter-Company Review Team

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Please review this report and submit an action plan and timetable in response to these findings and recommendations to the Team Leader within 45 days. Include any comments and a status report where any deficiencies have been corrected or where work is in progress. Your plan, comments and status report will be incorporated into the final report. Conclusive responses are essential as the final report will be forwarded to D.W. Everett, Vice President, Anaconda Aluminum Co.; then to R.R. Van Horne, President, Anaconda Aluminum Company; then to R.F. Cox, President, The Anaconda Company and then to W.L. Ridpath, Chairman, Health, Safety and Environmental Protection Council. You, as Facility Manager will also receive a copy.

Criterion I. POLICY

STANDARD: Managers and supervisors know and apply Atlantic Richfield environmental protection policy.

A. Findings and Evaluation:

1. The policy has been distributed by a direct mailing to employees, posting of a paraphrased version of the policy (ARCO'S RULES), inclusion in some training films, and in the "Environmental Protection Handbook."

2. Of the managers and supervisors interviewed, 57% could paraphrase five or more of the policy points.

3. All managers and supervisors interviewed spoke positively of the environmental accomplishments of management. They felt:
   - operations are managed diligently with environmental awareness;
   - the facility complies with environmental regulations and standards;
   - employees are trained in environmental matters;
   - line managers are entrusted with responsibility for environmental performance;
   - management considers environmental protection a legitimate cost of business.

4. Most of the hourly personnel know an environmental policy exists, but most were unable to name some of the specific points of the policy.

B. Recommendations:

1. Review the environmental policy with managers and supervisors until at least 90% can paraphrase five or more points.

2. Hourly personnel can then be instructed on the policy in the recommended training program. (See Criterion IV.)

C. Response:

In addition to A.1. above the environmental policy was distributed and discussed by the Environmental Department, foremen and supervisors to and with all hourly and salaried employees. Also, the policy was mailed to all employees on two separate occasions.

It is our opinion that the most important aspect of this Criteria is that employees know that a strong environmental policy exists and is applied to this plant. Of lesser importance is that employees paraphrase at least five of the policy points. Further pressure on the employees along these lines is not likely to be successful and could well be counter-productive. Therefore, additional major efforts toward distribution and review of the policy will not be made. However, on those occasions when the Environmental Department attends monthly Safety/Environmental Meetings (i.e., when requested or when information is to be disseminated) the policy will be reviewed and discussed with hourly employees and their foremen. Also, the policy will be reviewed with managers and supervisors by means of staff and departmental meetings.

Criterion II. REGULATIONS

STANDARD: Facility personnel know and comply with regulations.

A. Findings and Evaluation:

AIR

1. The major air regulation that impacts this facility is Montana State Regulation ARM 16.8.1420. The regulation limits both the fluoride and particulate emissions from the reduction plant (Potlines) to 864 and 4500 pounds per day, respectively (on a calculated basis of average tonnage of aluminum produced).

2. Monitoring data indicate fluoride emissions have exceeded the limitation on several occasions and a single-source test showed particulate emissions to be in excess of 10,000 pounds per day.

3. A Montana State House Joint Resolution HJR 22, effective on March 23, 1981 has directed the State Department of Health to repeal the existing regulation and replace it with New Source Performance Standards for Aluminum Reduction Plants. A question exists whether HJR 22 has legally replaced ARM 16.8.1420 as of this date.

4. Montana state regulation ARM 16.8.1403, "Particulate Matter, Industrial Processes" governs the maximum allowable weight of particulate which could be discharged to the atmosphere based on process weight. This regulation specifically excludes reduction cells of primary aluminum reduction plants, new stationary sources listed in ARM 16.8.1423, fuel-burning equipment, and incinerators.

   There is no evidence of monitoring of this standard at this facility.

B. Recommendations:

1. Resolve the question as to which air regulation applies to the reduction plant.

2. Ensure that this facility is in compliance with ARM 16.8.1403.

C. Response:

1. This plant's legal counsel stated that ARM 16.8.1420 was repealed as of April, 1981. A final draft of revised regulations for existing sources has been prepared by the Air Quality Bureau and submitted to the Board of Health. It is expected that these regulations will be adopted by the Board of Health on January 29, 1982.

2. Under normal operating conditions, particulate emissions from systems to which rule ARM 16.8.1403 applies do not exceed this standard. Monitoring, therefore, consists of ensuring that all particulate removal systems (e.g., baghouses, cyclones) are in good working order. The Environmental Control Group is responsible for conducting operating inspections of these systems. Visual observations of all plant systems are conducted daily, and a more detailed component inspection is carried out weekly. On a monthly basis, each system receives a comprehensive inspection. Also, monitoring for this regulation by in-stack testing methods has been conducted in the past, but not on a routine basis.

   We have discussed this situation with the Air Quality Bureau and were told that an annual in-stack emission inventory sampling program, coupled with the current inspection program, would be sufficient to meet the conditions of this regulation. This program will be initiated in the first quarter of 1982.

A. Findings and Evaluation:

WATER

1. This facility is not required to have an NPDES permit to discharge process and treated waters. Cooling water from the Casting Shop along with treated sewage discharge is gravity-fed to a series of evaporation ponds adjacent to the Flathead River. This discharge is tested for contaminants twice a week. Cooling water from the Paste Plant and also boiler condensate is gravity-fed into two evaporation ponds north of the plant. These ponds are connected by an open ditch. There are monitoring wells in the vicinity of the two ponds.

2. Fine coke from the Paste Plant appears to have lined the bottom of the ponds and the connecting ditch. In most areas, the depth of the coke is substantial.

3. A sheen of hydrocarbon is noticeable on the surface of the north ponds and the ditch.

4. Monitoring wells have been tested for fluoride and cyanide levels and pH. Testing has been done on a random basis.

5. Potable and process water for in-plant use is obtained from wells on the facility. Safety and Health monitors these wells as required under the Montana drinking water standards. These wells are also monitored for contaminants by the environmental group on a random basis.

6. A system does not exist to monitor all wells for possible contaminants on a specified regular basis.

B. Recommendations:

Through training, personnel should be made aware of the potential impact hazardous wastes would have on the waste water effluent. The Environmental Department should assess the need for future monitoring and control of waste water systems.

C. Response:

We agree that the importance of proper waste disposal practices should be emphasized. Through regularly scheduled Safety/Environmental Meetings, the Environmental Department will continue to provide instruction to applicable personnel.

The Environmental Department will continue in its effort to install and operate a ground water and waste water monitoring program that meets the needs of the plant and complies with all applicable regulations. This program will include monitoring the Paste Plant discharge and evaporation ponds north of the plant. The system will be in place by the end of 1981.

A. Findings and Evaluation:

RCRA

1. A comprehensive Hazardous Waste Management Plan is available and reflects management's commitment toward ensuring continued compliance. The plan is highlighted by a drum control program and detailed hazardous waste landfill operation, inspection, closure, and post-closure procedures.

2. Training has been provided for appropriate personnel as required.

3. Off-site disposal of hazardous wastes is accomplished in accordance with current regulations.

4. There is no system in place to ensure that the proper waste gets into the correctly coded drum. While the status of the drums are monitored by the environmental group effectively, the contents are assumed to be correct.

B. Recommendations:

Develop and implement a system which would minimize the risk of inadvertently mixing hazardous wastes with non-hazardous wastes. This may be accomplished by assigning specific responsibility for drums to the supervisor in the particular area.

C. Response:

Efforts have been undertaken to ensure that proper segregation of liquid wastes is carried out (through personnel instruction), and there is no evidence that the system has failed. However, we agree that additional attention should be devoted to this area. Specifically, supervisors and hourly personnel will receive further instruction on the importance of waste segregation and detailed procedures, and supervisors will be assigned the responsibility for ensuring that the program is successful.

A. Findings and Evaluation:

TSCA

1. Equipment and facilities containing PCB and contaminated materials were found to be properly identified.

2. A detailed inventory exists for PCB equipment and facilities.

3. Documented inspections of PCB contaminated equipment are performed on a quarterly basis. Regular monthly inspections are performed on equipment containing any amount of PCB.

4. Rectifier Supervisors, Service Department Supervisors and Rectifier Electricians receive training twice a year on PCB's, their characteristics, proper handling precautions, identification and a summary of TSCA regulations.

B. Recommendations:

A management system is in place and operating effectively.

Criterion III. OPERATING PROCEDURES

STANDARD: Facility has written operating procedures which include emission and effluent limitations. Provides for self-monitoring.

A. Findings and Evaluation:

1. Written operating procedures were reviewed for the following major units:
   - general cell operations;
   - dry scrubber operations;
   - baghouse operations;
   - unloading operations;
   - Paste Plant operations;
   - Rectifier operations;
   - waste handling disposal.

2. The above procedures are up-to-date, available, and include environmental safeguards and appropriate emission limitations.

3. Written operating procedures for the Casting Department are not available.

4. Two types of fluoride emission monitoring systems are utilized in the plant:
   a. A plant-designed system installed in nine potrooms;
   b. An EPA-specified system located in no. 9 potroom.

   Results from the plant-designed system have been verified by outside consultants as being equivalent to those of the EPA-specified system.

B. Recommendations:

Prepare written operating procedures for the Casting Department that will incorporate environmental safeguards and any appropriate emission or effluent limitations.

C. Response:

Written operating procedures for the Casting Department will be completed by April 1, 1982.

Criterion IV. TRAINING-MOTIVATION

STANDARD: Employees are trained to work in an environmentally acceptable manner. Management motivates employees to be concerned about the environment.

A. Findings and Evaluation:

1. Employees are effectively trained to perform their jobs in an environmentally acceptable manner. Training programs for the various departments were reviewed and found to exist in the following manner:

Department	Type
General Reduction Department Operations	Formal and OJT
Potline Technicians	Formal and OJT
Maintenance Craftsmen	Formal and OJT
Service Department Operators	Formal and OJT
Environmental Control	Formal and OJT
Paste Plant Operators	OJT
Casting Department Operators	OJT
Rectifier Operators	Formal and OJT

2. Skilled and semi-skilled personnel are trained when beginning a new job and when performance indicates retraining is required.

3. Several training programs from the potline operations were reviewed and found to effectively incorporate environmental concerns. The program consists of a voice-slide presentation augmented by instructor presentation.

   All training and retraining programs are fully documented.

4. Employees are motivated by prompt and effective handling of their environmental concerns by management. All managers, supervisors, and technical staff and 86% of hourly employees stated that employee concerns are effectively handled. Although no specific instance could be cited as to lack of proper handling of employee concerns, several employees indicated a desire to improve communications where overall plant environmental matters are involved.

5. An informal, motivation program exists in several forms:
   a. Weekly publications of job performance ("News and Views") are posted throughout the plant which contain emission results;

b. Weekly emission results for each of the ten potrooms are posted, and on a monthly basis, "Leading Lines" for emission reduction is recognized;
c. Various motivational signs are posted throughout the plant;
d. An attempt was made in 1979 to make monetary awards and subsequently discontinued as a result of hard feelings among hourly personnel.

B. Recommendations:

1. While weekly and monthly performance of potline operations are adequately posted throughout the plant, it is recommended that additional avenues of communications of overall environmental performance and requirements be established. Perhaps a formalized program of review of the newly issued Employee "Environmental Protection Handbook" could be given to all employees and periodic reviews of performance established.

2. It does not seem appropriate to establish an incentive program identical to the one attempted in 1979. Perhaps a program which would include all plant personnel based on overall plant reduction of emissions would be more appropriate and satisfactory.

C. Response:

1. We feel that the current lines of communication, and particularly the recently established regularly scheduled environmental meetings between hourly employees and their foremen, are adequate for the plant's needs. From time to time the newly issued "Environmental Protection Handbook" will be reviewed as well as environmental protection performance at these meetings.

2. It has been our experience that incentive programs are not particularly effective for purposes of achieving environmental objectives, and that effort and manpower used to implement such programs could be more effectively utilized elsewhere. Therefore, we do not intend to establish incentive programs beyond those currently in place and mentioned above.

Criterion V. ENVIRONMENTAL EMERGENCIES

STANDARD: Proficient personnel are available during all operations to carry out written, up-to-date procedures.

A. Findings and Evaluation:

1. A drill was conducted simulating emergency shutdown of a ventilation fan discharging to the A-398 dry scrubber. The positive points noted were:
   a. Personnel knew exactly what to do;
   b. Responses and actions were accomplished within a few minutes;
   c. The use of two-way radios for operating and maintenance personnel provide for quick action.

2. The SPCC plan and oil storage facilities were reviewed and inspected. Some of the concerns raised by the inspections and interviews include:
   a. Many of the storage tanks and especially the 10,000 gallon tanks of transformer oil have no provisions for containment. The proximity to the lower elevation area of the Flathead River along with comments on the porosity of the soil poses the possibility of a serious environmental impact in the case of a large spill;
   b. The SPCC plan does not provide for a spill clean-up coordinator, assignment of responsibilities and actions, a training program, or any clean-up material or equipment.

B. Recommendations:

Review the SPCC plan and, in light of existing conditions and possible impact, develop a program to preclude any adverse environmental emergency.

C. Response:

We agree with this recommendation. The Engineering Department is currently designing containment systems for the above-mentioned oil storage tanks. The Environmental Department will prepare a plan for personnel training, contingencies, inspections of storage areas, etc. that will meet all requirements and provide adequate protection to the environment. The SPCC plan will then be modified accordingly.

Criterion VI. INCIDENTS -- FOLLOW-UP

STANDARD: Prompt and effective steps are taken to study and avoid recurrence of serious incidents.

A. Findings and Evaluation:

1. The facility maintains an Environmental Control Incident File which contains guidelines for the reporting, analysis, and follow-up of environmental incidents.

2. Other informative items contained in this file are:
   a. Dry scrubber operating reports which detail uptime and problem areas;
   b. A summary of current environmental regulations;
   c. Miscellaneous environmental control procedures such as, but not limited to, dry scrubber operator's training guide, summary of plant emission control equipment, PCB procedures, landfill operating procedures, etc.

B. Recommendations:

Management system is in place and operating effectively.

Criterion VII. ENVIRONMENTAL PROTECTION INFORMATION

STANDARD: Effective systems provide for gathering and distributing current environmental protection information and applying it to existing or new operations.

A. Findings and Evaluation:

1. A system exists for gathering environmental information. Its effectiveness is reflected in the organization and completeness of the regulations and manuals on hand at this facility:
   a. The State of Montana regulations have been compiled in manual form with air, water, and solid waste indexed for quick reference;
   b. Access to Federal regulations has been provided by subscriptions to the Bureau of National Affairs Environmental Regulations Service and acquisition of the appropriate Code of Federal Regulation manuals;
   c. A recently distributed internal EPA manual on the inspection guidelines for PCB has been obtained by the facility.

2. A system exists to identify and consider the best available pollution control technology. Its effectiveness is reflected in the acquisition and installation of:
   a. The Sumitomo Process for control of fluorides and particulate emissions;
   b. The dry scrubber and baghouse for stack emission control and recycle of fluorides and particulates;
   c. The approved hazardous waste landfill site;
   d. Sampling and monitoring of roof emissions of fluoride from each potline.

3. Dissemination of specific environmental information is discussed in detail under the Criteria on Policy and Training. Some notable positive actions taken by the Environmental Department include:
   a. A poster on the Environmental Policy rephrased to accomodate the acronym "ARCO'S RULES" and posted throughout the plant;
   b. Preparation and distribution of the "Environmental Protection Handbook" for Columbia Falls operation;
   c. The calculation and reporting of fluoride emissions from each potline and the graphic display of those emissions to provide focus and motivate competitiveness for the reduction of emissions;

d. Preparation of the Solid and Hazardous Waste Disposal Manual and the Shops and Utilities Environmental Handbook.

4. Though a great deal of effort has been made in the gathering and dissemination of environmental information, the responses from the interviews do not reflect that effort:
   a. Most of the hourly employees could not recall the points of the policy and some could not recall receiving any information at all on the policy;
   b. When asked "What regulations must you know in doing your job?", most of those interviewed cited only the fluoride emissions. Those involved with PCB's or the landfill operation did cite those as additional concerns;
   c. Most of those interviewed did express an interest in knowing more about the environmental features, requirements, and problems of the plant.

B. Recommendations:

Expand the effort to disseminate plant-wide environmental information and concerns. A direct communication approach, rather than the indirect approach of memos and letters might be considered. (See Criterion IV. - Training.)

C. Response:

We agree that additional effort to establish lines of communication with all employees on environmental matters is warranted. As mentioned above, many of our employees do have an active interest in environmental matters and wish to be kept informed. However, we feel that the recently initiated regularly scheduled environmental meetings, which establish communication with all hourly and most salaried employees, should meet this need. An appraisal of this situation will be made over the next several months. If, at the end of that time, it appears warranted, additional lines of communication will be established.

Criterion VIII. MAINTENANCE

STANDARD: Controlled maintenance systems provide prompt and effective correction of deficiencies or non-compliance.

A. Findings and Evaluation:

1. Written procedures exist for the maintenance of environmental control equipment. Procedure manuals for operation and maintenance of the ventilation equipment and gas scrubbing facilities are readily available to the people involved in these activities. Inspection and repair procedures have been established for maintenance of the skirt boards, burners, and goosenecks connected to the ventilation ducts.

2. A scheduled inspection system has been established for the environmental control equipment. A detailed checklist has been developed to assure that proper inspections are carried out by qualified maintenance personnel.

   Any deficiencies noted in the inspection are scheduled and corrected according to a priority system established for all maintenance.

   Maintenance schedules at Columbia Falls are based on a priority system that range from 1 (very low, i.e. cosmetic work) to 100 (immediate response and resolution).

   Any condition that might result in a non-compliance situation has top priority. Other repairs are rated according to the degree that the deficiency will effect safety, environment, and production.

3. Maintenance work is primarily initiated by an inspection system. Scheduled and visual inspections are a part of the normal operating procedures. Any malfunction of environmental control equipment is promptly reported and acted upon by the maintenance unit.

4. No major deficiencies were noted during the inspections, although several negative comments concerning the Paste Plant were noted during the interviews. Some interviewees attributed the existing conditions at this facility to the age of the installation.

B. Recommendations:

1. A preventive maintenance program or periodic replacement of components based on statistical history should be considered to determine if a cost-effective system could be developed that would result in decreasing emissions through less down-time on essential units.

2. Make an assessment of the conditions existing at the Paste Plant to evaluate the employee's concerns.

C. Response:

1. We agree that the incorporation of a statistical-based component replacement system within the overall Preventive Maintenance Program could be of value. We are, therefore, establishing such a system in critical areas of the plant. Depending on the effectiveness of this initial incorporation, the program will be expanded to other areas, including environmental control systems.

2. The Environmental and Engineering Departments are currently conducting tests in the Paste Plant, and evaluating engineering designs in an effort to improve working conditions and alleviate adverse environmental conditions in this area of the plant. These efforts will be continued.

Criterion IX. THIRD PARTY ACTIONS

STANDARD: Third party contractors perform in an environmentally sound manner under the supervision of a knowledgeable contract administrator.

A. Findings and Evaluation:

1. Prior history regarding environmental performance is considered before contractors are selected. Records of contractors previously employed are reviewed and references of those being considered for a project are checked.

2. The Atlantic Richfield environmental protection policy has recently been incorporated into the current contract. Contractor compliance with applicable government regulations is required in the contract language.

3. The environmental performance of the contractor is not formally monitored but is noted during normal project inspections by the project supervisor. Comments concerning contractor performance are included in the final project report.

B. Recommendations:

A procedure for reviewing and monitoring third-party actions should be considered with the Environmental Department becoming an integral part of the system.

C. Response:

Such a procedure will be initiated here. The Environmental Department will have the responsibility for monitoring, on a regular basis, third party actions. The results of the monitoring will be logged and documented, and should prove useful in A.1. above.

Criterion X. EXTERNAL COMMUNICATION

STANDARD: Established systems provide effective communication with the government and the public.

A. Findings and Evaluation:

1. The Anaconda Columbia Falls plant has an effective external communications system in place to communicate with government and public entities.
   - Two key managers are registered lobbyists who assist state government in promulgation of sound legislation relative to the environmental impact of the plant;
   - Key professionals actively participate in industry environmental associations. Specifically noted activities include participation in Aluminum Association Committees on Environmental Evaluations, Chamber of Commerce, Natural Resource Committee, and Flathead River Basin Technical Advisory Group;
   - Active participation by Union representatives in legislative hearings and testimony concerning plant environmental affairs;
   - Publication and distribution of "Environmental Protection Handbook" for employees and public;
   - Communication with the local media, including monthly inclusion of "Potline" column in local newspaper "Hungry Horse News";
   - Key professionals and managers speak to and participate in civic organizations, school boards, and fraternal organizations;
   - Public Relations Manager responds to any negative publication quickly with appropriate media news releases;
   - Approximately two plant tours are conducted monthly for the public;
   - Hourly employees' responses to public inquiry are positive, but tend to be job-oriented rather than overall plant-oriented.

B. Recommendations:

1. Continue current external communications activities.

2. Provide more "overall" plant environmental information formally to hourly employees so they can better represent the plant in neighborly discussions rather than just their areas of work.

C. Response:

The "overall" plant environmental information mentioned here will be presented to employees through Safety/Environmental Meetings.

Review Team Methodology

1. On-site review started: October 27, 1981

2. Closing on-site conference:November 3, 1981

3. List of managers interviewed:

   C.E. Fisher - Reduction Manager
   L.W. Smith - Technical Operations Manager
   L.H. Cousineau - Engineering Manager
   S.W. Eccleston - Materials Manager
   A.J. Canavan - Public & Governmental Affairs Manager

4. A sample of twenty-one (21) other supervisors was interviewed.

5. A sample of fifty-seven (57) technical staff and hourly employees was interviewed.

6. Drills and demonstrations were observed as follows:

   Dry scrubber inlet line fan shutdown drill.